LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI -B

WATERBODY MANAGEMENT PLAN SERIES

IATT LAKE

WATERBODY EVALUATION &
RECOMMENDATIONS

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED ANNUALLY

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WATERBODY EVALUATION

STRATEGY STATEMENT

Recreational
Sportfish species are managed to provide a sustainable population while providing anglers the opportunity to catch or harvest adequate numbers of fish to maintain angler interest and efforts.

Commercial
The physical characteristics of Iatt Lake will not support a commercial fishery. Therefore a commercial fisheries management strategy is not in effect.

Species of Special Concern
No threatened or endangered fish species are known to inhabit this waterbody.

EXISTING HARVEST REGULATIONS

Recreational
Statewide regulations for all fish species, the LDWF recreational fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/fishing/regulations

Commercial
The LDWF commercial fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/fishing/regulations

SPECIES EVALUATION

Recreational
Largemouth bass (LMB) populations are targeted for assessment because they are a species indicative of the overall health of the fish population due to their high position in the food chain. Electrofishing is the most efficient sampling method for collecting largemouth bass to evaluate abundance and size distribution, with the exception of large bass. Gill net sampling is generally the preferred method to determine the status of large bass and other large fish species. However, gill net use in Iatt Lake is limited due to extensive shallow water and dense aquatic vegetation.

Largemouth Bass

Relative abundance and size structure indices-
Electrofishing has been used to collect largemouth bass population data in Iatt Lake since 1991. In Figure 1, springtime electrofishing results are used as an indicator of largemouth bass relative abundance with total catch-per-unit-effort (CPUE) indicated since 1991.

Sampling was conducted in the spring and fall on a bi-annual basis through 2007 except during years when the lake is undergoing a drawdown or aquatic vegetation restricts access to shallow water sampling areas. Figure 2 indicates trends in catch per unit of sampling effort for all largemouth bass size groups are varied. Sampling from 2001 until 2005 indicated an increasing LMB population. This population spike was likely a result of record high water levels in 2001 that likely improved LMB spawning conditions and recruitment. The decrease in CPUE from 2005 to 2010 was likely a result of several factors. The first factor was a reduction in sampling efficiency due to the extensive hydrilla coverage and the second was a reduction in the fish population due to a fish kill in 2008 in association with Hurricane Gustav. The significant amount of submergent vegetation primarily hydrilla makes it difficult to acquire a representative LMB sample. Electrofishing sampling is primarily conducted in shallow water depths. The majority of waters less than 6 feet in Iatt Lake are matted to the surface with submergent vegetation. Fall sampling was not conducted between 2005 and 2011 due to extensive aquatic vegetation limiting access to shallow water areas.

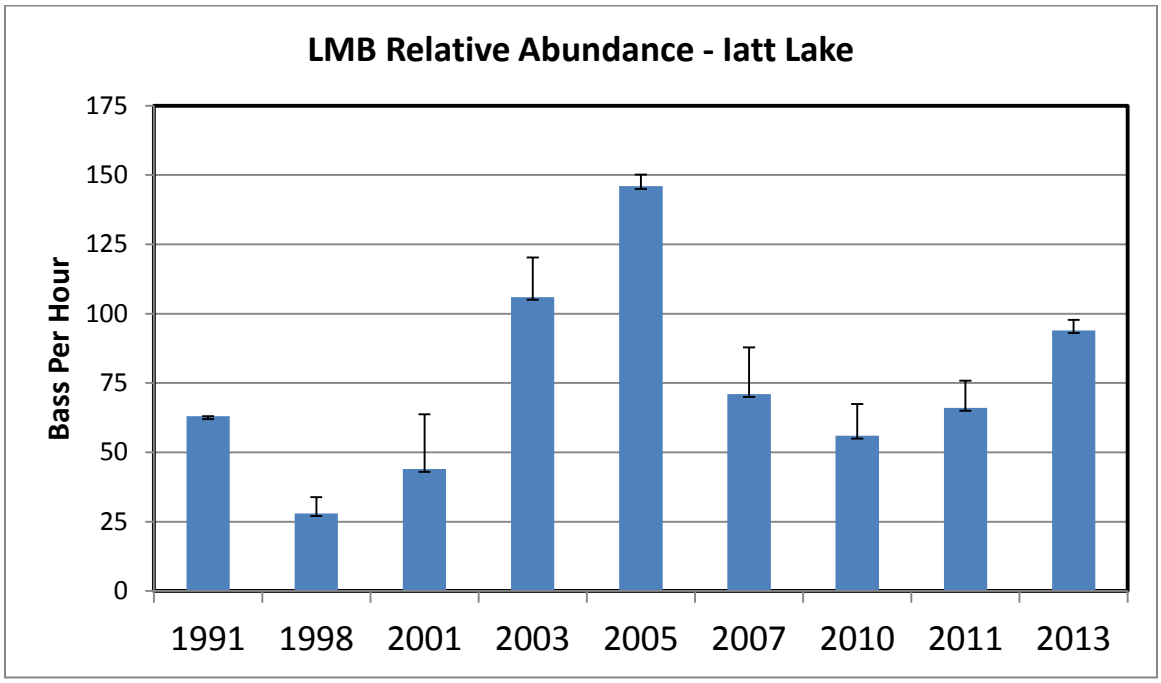

Figure 1. The total CPUE (± SE) for largemouth bass for spring electrofishing results from Iatt Lake, Louisiana from 1991 – 2013. Error bars represent standard error of total CPUE.

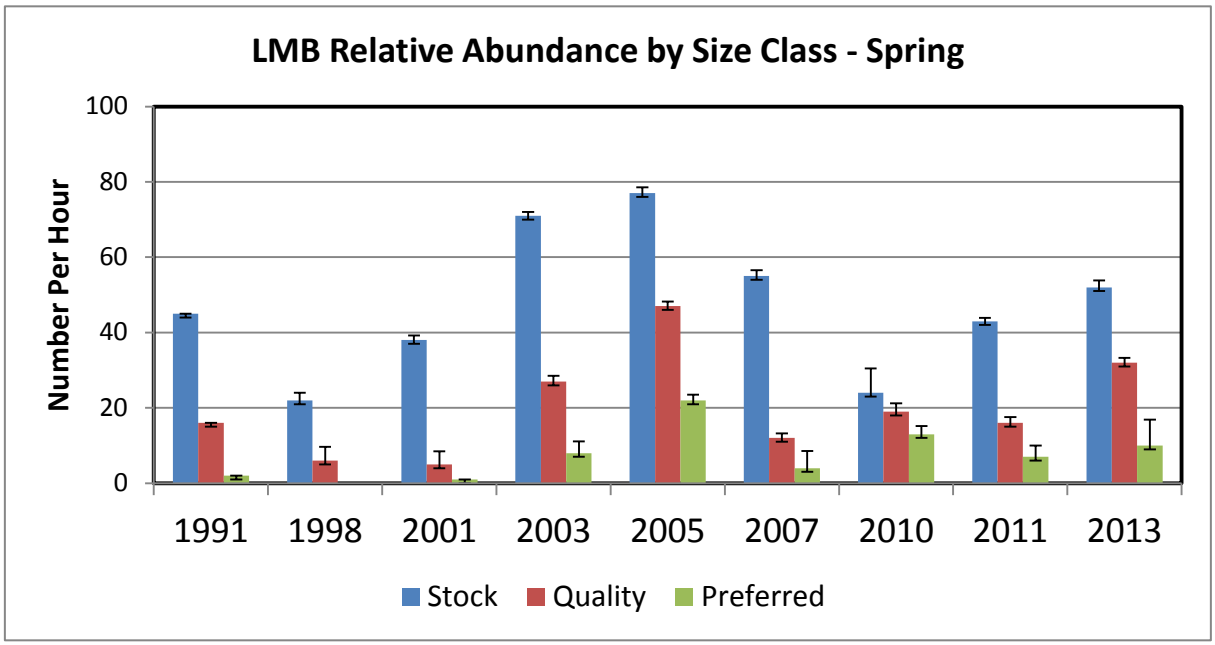

Figure 2. The CPUE (± SE) for stock-, quality-, and preferred-size classes of largemouth bass on Iatt Lake, Louisiana for spring season from 1991 – 2013.

Proportional stock density (PSD) and relative stock density (RSD) are indices used to numerically describe length-frequency data. Proportional stock density compares the number of fish of quality size (greater than 12 inches for largemouth bass) to the number of bass of stock size (8 inches in length). PSD is expressed as a percent. A fish population with a high PSD consists mainly of larger individuals, whereas a population with a low PSD consists mainly of smaller fish. For example, Figure 3, below indicates a PSD of 61 for 2005. The number indicates that 61% of the bass stock (fish over 8 inches) in the sample was at least 12 inches or longer. Individual lakes vary widely in their ability to support populations of bass generally PSD's between 40 and 60 are considered good.

$$PSD = \frac{\text{Number of bass>12 inches}}{\text{Number of bass>8 inches}} \text{ x100}$$

Relative stock density (RSD) is the proportion of largemouth bass in a stock (fish over 8 inches) that are 15 inches or longer.

$$RSD = \frac{\text{Number of bass>15 inches}}{\text{Number of bass>8 inches}} \text{ x100}$$

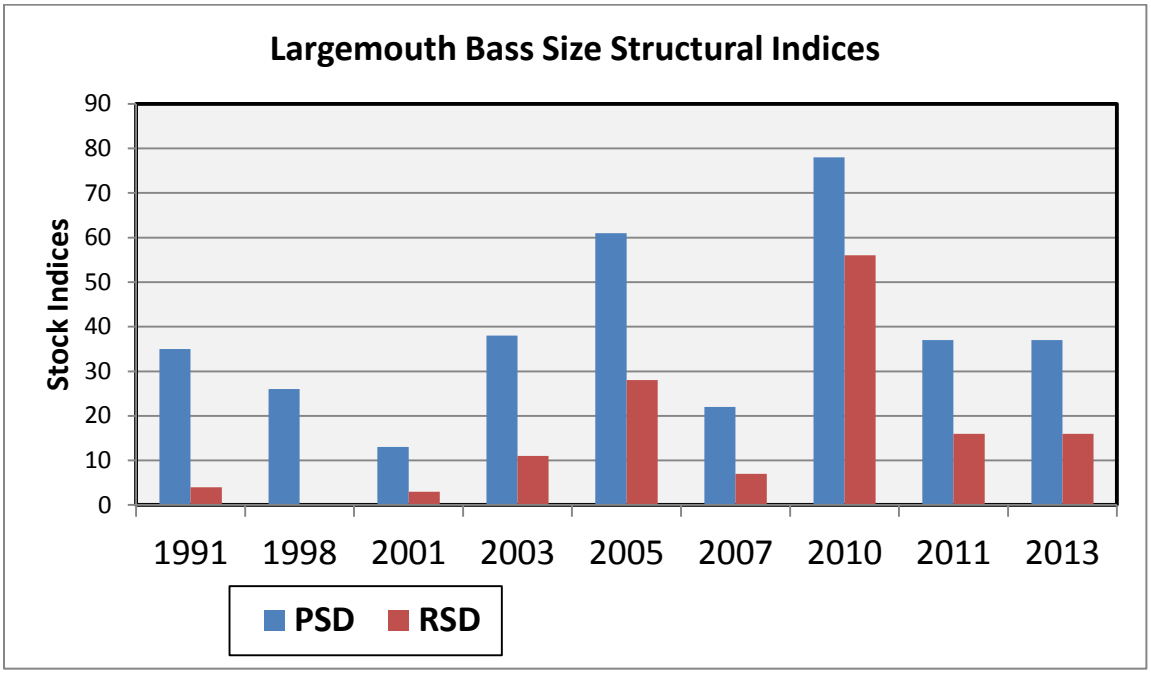

Figure 3. PSD and RSD-p largemouth bass collected from Iatt Lake, Louisiana for spring electrofishing samples from 1991 – 2013.

Trends in sampling data indicate PSD's and RSD's increased from 2001 until 2005 then sharply decline from 2005 to 2007 with a sharp increase in 2010. As discussed in the section above, the decrease in CPUE during springtime electrofishing may not be a true indication of the LMB population. The increase in submergent vegetation primarily hydrilla limited access to electrofishing stations. This had a negative impact on electrofishing efforts and likely caused the drop in all aspects of electrofishing sampling including CPUE, PSD's and RSD's. Due to several factors including drawdowns, triploid grass carp and severe freezing temperatures the aquatic vegetation is less dense than previous years. If better control of aquatic vegetation occurs in the future more reliable electrofishing samples may be available.

Forage and relative weight-

Prior to 2011 the primary forage for largemouth bass in Iatt Lake was sunfish and silversides (see Figure 4 below). Following summer drawdowns, crawfish are plentiful in the lake and are readily consumed. Forage availability was measured through shoreline seine sampling and indirectly through measurement of largemouth bass body condition or relative weight.

In the fall of 2011, forage availability was measured by electrofishing sampling. A large number of threadfin shad were collected. Figure 5 below indicates over 50% of the available forage that year was threadfin shad. Prior to this event no threadfin shad had been collected in Iatt Lake. It is suspected that the extreme high water levels that occurred in the fall of 2008 provided an opportunity for the threadfin shad to enter the lake from the Red River as it overflowed.

Relative weight (Wr) is the ratio of a fish's weight to the weight of a "standard" fish of the

same length. The index is calculated by dividing the weight of a fish by the standard weight for its length, and multiplying the quotient by 100. Largemouth bass relative weights below 80 indicate a potential problem with forage availability. Relative weights have historically been calculated from fish collected during fall electrofishing. Unfortunately, fall sampling data was not conducted on Iatt Lake in some years due to fall drawdowns and heavy aquatic vegetation coverage. Relative weight results (Figure 6) indicate that Iatt Lake largemouth bass Wr values fall within acceptable levels.

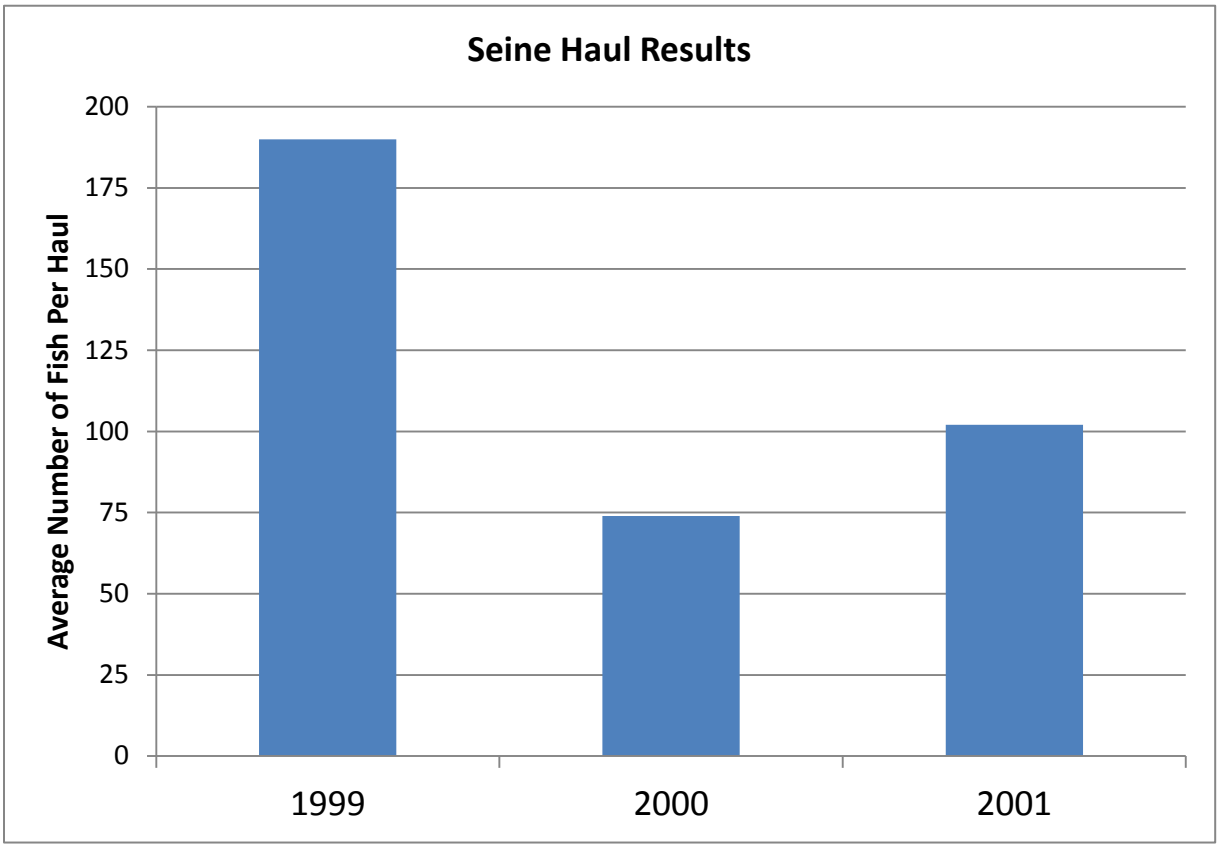

Figure 4. The CPUE (average number per seine haul) of centrarchid sunfishes (*Lepomis spp*.) and silversides (*Labidesthes sicculus*) from shoreline seining for Iatt Lake, LA, for 1999 - 2001.

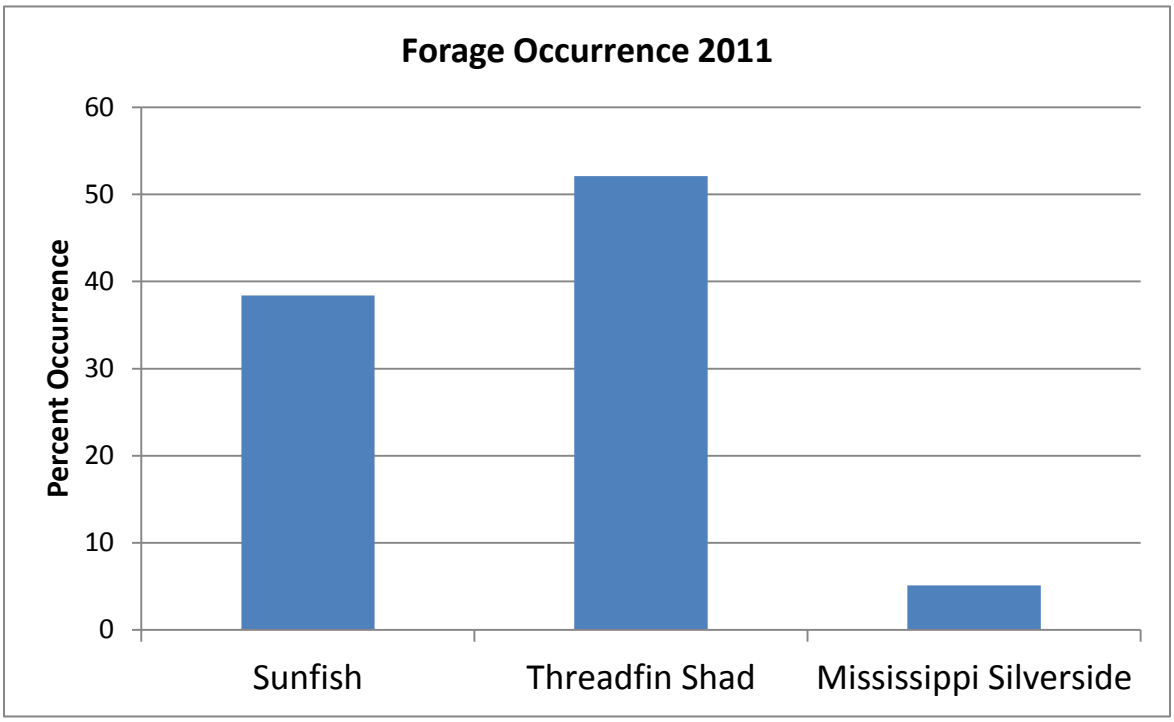

Figure 5. Percent frequency of occurrence by number for forage species found in Iatt Lake, Louisiana for 2011.

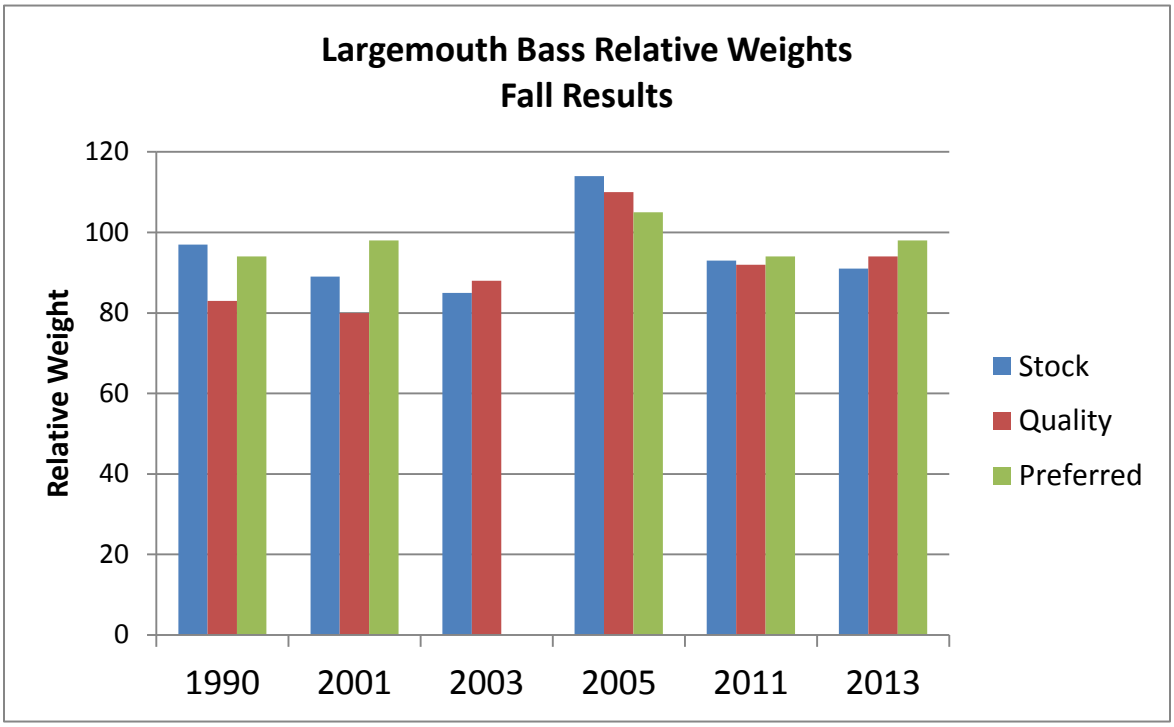

Figure 6. Relative weights for stock-, quality-, and preferred-size classes of largemouth bass collected during fall electrofishing for Iatt Lake, Louisiana from 1990 – 2013.

Largemouth bass age and growth-

Age and growth data were collected from 39 LMB in the fall of 1990. The results of this sample are listed in table 1 below and indicate Iatt bass growth rates are lower than the state average. However, due to the small sample size additional age and growth data is needed. Historically aquatic vegetation problems have been the main issue concerning the management of Iatt Lake. Prior to 2010, LDWF sampling protocol required otoliths collected for age and growth analysis be collected in the fall. Due to the severe aquatic vegetation problem numerous drawdowns occurred in the fall, the low water during the drawdown prohibited sampling in the fall. Also, scheduled fall sampling was canceled on several occasions' due to thick vegetation limiting access to sampling areas. A 3 year mortality and genetic study was initiated in the spring of 2013. The results of this study will provide important LMB age and growth information. Results will be available following the completion of the study in 2015.

Table 1. Bass growth rates in 1990 for Iatt Lake, Louisiana. N = 39.

AGE	AVERAGE LENGTH (INCHES)
1	5.6
2	10.3
3	13.0
4	14.9
5	16.0
6	16.8

Largemouth bass genetics-

Florida bass (FLMB) have been sporadically stocked into Iatt Lake primarily to improve public relationships with the local fishermen and lake users. The first stocking was initiated in 1994 with 145,000 fry and 37,895 fingerlings being stocked at that time. Subsequent stocking in 1998 added 35,300 fingerlings. These initial limited stockings did not likely increase the Florida genetic influence. The number of Florida bass stocked into Iatt Lake was low when compared to other central Louisiana lakes. However additional stockings in 2005, 2006, and 2009 added 205,169 fingerlings. Genetic sampling was scheduled for the fall of 2007. However, fall sampling in 2007 was cancelled due to excessive submergent vegetation. All portions of the lake less than 6 foot deep were matted to the surface making it impossible to collect a representative sample for testing. Genetic sampling was conducted on 17 LMB in 1990 prior to initial stocking of Florida bass and did not reveal the presence of the Florida bass strain in the fish population.

Due to a fish kill which occurred in the fall of 2008, restoration stockings of approximately 1 million Florida bass fingerlings took place from 2009 - 2012. A 3 year mortality and genetic evaluation study was started on Iatt in 2013. Tissues and age and growth data will be collected for 3 consecutive years. Preliminary genetic testing in 2013 found 14.2 % Florida gene influence. Final results of the study will be available following the completion in 2015. See Table 2 for a complete history of genetic testing.

Table 2. Largemouth bass genetic testing results in Iatt Lake, Louisiana.

Year	% Northern	% Florida	% Hybrid	% Florida Influence
1990	100 (N=17)	0	0	0
2013	85.8 (N=97)	1.8 (N=2)	12.4 (N=14)	14.2

Crappie

Historical rotenone sampling data from 1961 through 1984 averaged 4.6 pounds of black crappie and 4.7 pounds of LMB per acre in Iatt Lake. Average total standing crop of fish per acre for the same time period was 72 pounds. Due to extensive shallow water, stumps and excessive submergent vegetation no lead net sampling of crappie or sunfish has been conducted. However, numerous crappie fishermen utilize the lake and it is one of the most sought after species in the lake. Primarily, the fish are caught in the winter and early spring prior to the emergence of aquatic vegetation. Also hanging yo-yo's from cypress trees is popular during the winter months.

Commercial

Large rough fish species that normally comprise a commercial fishery are not found in this waterbody in sufficient quantity for a viable commercial fishery. In 1999, gill net sampling collected 2 carp, 3 freshwater drum, 2 blue catfish, and 1 flathead catfish. Gill net sampling in 2009 collected few commercial fish. Gills nets results are found in Figure 7 below.

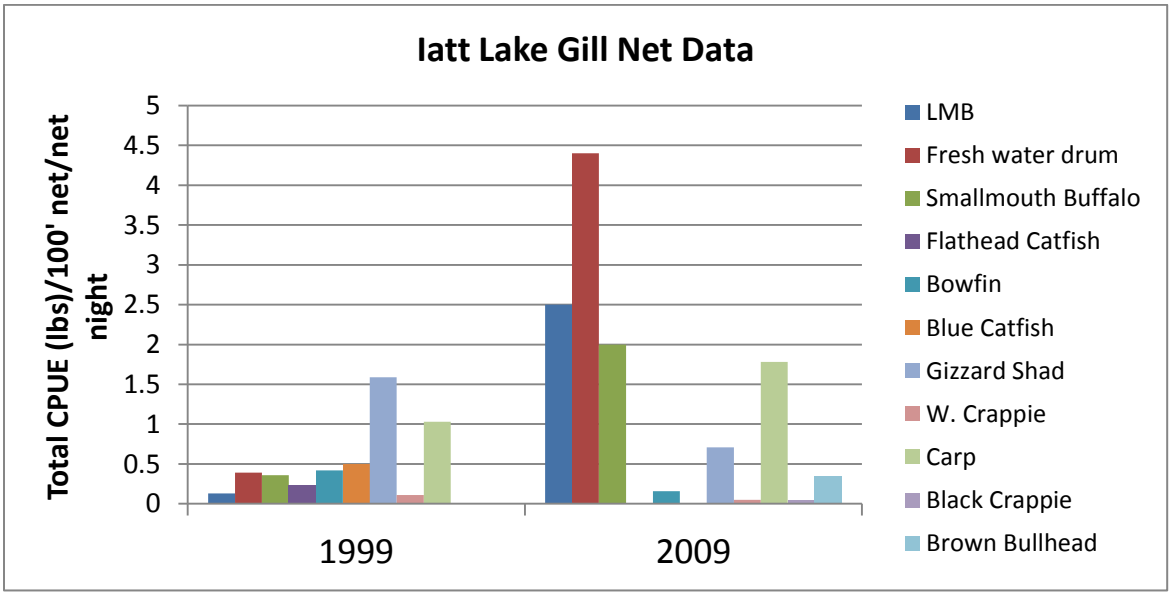

Figure 7. Total CPUE by species for fish collected with gill nets in for Iatt Lake, Louisiana.

Species of Special Concern
No threatened or endangered fish species are known to inhabit this waterbody.

HABITAT EVALUATION

Aquatic Vegetation – Iatt Lake has an extensive coverage of timber throughout most of the lake. The majority of the lake has water less than 6 foot deep and is infested with submerged vegetation. The northern half of the lake is predominately bladderwort (*Utricularia spp.*) and cabomba (*Cabomba caroliniana*). The southern end of the lake was infested with hydrilla (*Hydrilla verticillata*) until 2008. The lake was drawn down 8 foot below pool elevation in 2008 and triploid grass carp were stocked in the lake. Large areas of American lotus (*Nelumbo lutea*) are also found throughout the lake. Since the lake was created in 1956, aquatic vegetation has been problematic. Historically, aquatic vegetation creates problems in the late summer and fall by restricting access to fisherman and recreational boating. Much of the shallow water areas of the lake are inaccessible.

Herbicide spraying is conducted annually on Iatt Lake for water hyacinth (*Eichornia crassipes*) American lotus, and salvinia spp. control. However, adequate control is difficult due to submerged shallow water vegetation and thick stands of trees that make spraying from a boat difficult.

In fall, 2008 common salvinia (*Salvinia minima*) had begun to form mats in areas of the lake and was restricting access. Common salvinia coverage increased to approximately 3,000 acres in the fall of 2009. Cold weather in December, 2009 included temperatures below 20° F and resulted in a thin layer of ice over much of Iatt Lake providing effective control. It appears at this time that much of the salvinia has been killed and submergent vegetation has not begun to reappear.

In January, 2010 aquatic vegetation coverage on Iatt Lake was less than in recent history. The decrease was caused by a combination of factors including:

1. A summer/fall drawdown in 2008.
2. A high water event in 2009 that effectively reduced hydrilla coverage.
3. A stocking of 21,300 triploid grass carp in February of 2009.

The coverage of common salvinia was reduced to less than 100 acres by severe freezing temperatures in the winter of 2010/2011.

Giant salvinia was discovered on the north end of the lake near Hog Island boat ramp in the fall of 2012. Spray efforts were increased in the area. Unfortunately, eradication is unlikely. The habitat where the salvinia was discovered has extensive shallow water and timber which made spraying difficult. Due to the extensive cypress-tupelo coverage throughout the lake giant salvinia is likely to cause severe problems in the future.

Iatt Lake is still experiencing problems with aquatic vegetation. American lotus causes seasonal problems from late summer until fall. Coverage was approximately 2000 acres in

October 2013. Fanwort and bladderwort restricted boating access in much of the northern half of the lake during the summer and fall. Coverage was approximately 6,000 acres. Hydrilla has not returned to the lake since the TGC stocking in 2009. Due to mild winters common salvinia coverage could expand to previous levels of 2,000+ acres. Giant salvinia was discovered in 2012 and is likely to become more prevalent in the near future. Coverage in excess of 3,000 acres could be possible within several years. Alligator weed and water hyacinth coverage was similar to past years and was less than 200 acres.

Substrate

Natural water level fluctuations that historically controlled leaf litter build-up were altered with the impoundment of Iatt Lake. When the spillway was constructed, it caused water levels to remain constant as opposed to the former regime that included high spring and low fall water levels. The thick stand of cypress and tupelo produces a large amount of leaves each year. Leaves that remain underwater decompose at a far slower rate than those exposed to the air. The annual low water period that oxidized organics was a necessary component to the swamp ecosystem that existed before the lake was impounded. The annual senescence of submerged vegetation also contributes to the accumulation of organic matter.

Artificial Structure

Iatt Lake has an overabundance of natural complex cover including aquatic vegetation and cypress and tupelo timber. No artificial structure is necessary.

CONDITION IMBALANCE / PROBLEM

Iatt Lake has a severe infestation of aquatic vegetation. Submerged and floating vegetation is causing problems with boating access and fishing during the late summer and fall. Most of the water less than 6 foot deep is matted with submerged vegetation to the point that boating access is difficult. Bladderwort, fanwort and lotus have formed large mats in areas of the lake that are impenetrable by boat. These areas make it difficult for camp and home owners to access their boat houses and piers.

Excessive organic material has accumulated on the lake bottom due to the disruption of the natural water level regime when Iatt Lake was created. Without annual exposure to air in the late summer and fall months, leaves decompose under water through the much slower anaerobic decomposition process. Throughout the life of the impoundment, the material has accumulated to such an extent that spawning substrate for nesting fish is covered. The numerous drawdowns that have occurred every 3 to 5 years on Iatt have not caused a significant reduction in organic bottom sediments. Consequently, a reduction in fish production is expected in the future and a more aggressive drawdown regime may be required.

CORRECTIVE ACTION NEEDED

The fish sampling program has been sporadic due to an extensive infestation of aquatic vegetation. Available sampling results indicate a LMB population that fluctuates widely. It

is believed that much of the variance is sampling error as a result of heavy aquatic vegetation rather than actual population change. Unfortunately, due to the heavy tree and vegetation coverage in Iatt Lake, organic leaf litter will continue to be a concern. At some point in the future, a more aggressive drawdown regime may be necessary. A drawdown regime that emulates natural fall low water periods would be of great benefit.

Immediate needs include vegetation control and a reduction of organic substrate.

RECOMMENDATIONS

1. Continue existing recreational and commercial harvest regulations.

2. LDWF will continue fish population sampling and annual aquatic vegetation surveys.

3. Due to the discovery of giant salvinia, additional measures will be implemented. In addition to the annual vegetation survey, technicians will make monthly inspections of the lake to document the presence and growth of giant salvinia. Spray efforts will concentrate on giant salvinia utilizing the herbicide mixture described below:

   LDWF spray crews will continue treating emergent and floating vegetation as needed with either glyphosate or diquat and an approved surfactant. These herbicides are applied at the rate of 0.75 gallons per acre with the surfactant applied at 0.25 gallons per acre. A diquat/glyphosate mix may be applied to giant salvinia infestations at a rate of 0.75 gal/acre glyphosate, 0.25 gal/acre diquat, 0.25 gal/acre Aqua King Max, and 8 oz. of Thoroughbred. Alligator weed will be controlled with Imazapyr (0.5 gal/acre) in undeveloped areas and with Clearcast (0.5 gal/acre) near houses and developed shorelines.

APPENDIX I

Typemap
Iatt Lake

June and August 2013

Iatt Lake, northeast of Colfax in Grant Parish, is a 7100 acre lake. It is a flooded swamp type impoundment with 80% of the surface covered with cypress and tupelo timber. It was surveyed for the presence of aquatic vegetation in June and August of 2013.

As in past years, the majority of the lake was infested with vegetation. Greater than 80% of the lake area was infested with submersed vegetation primarily fanwort and bladderwort. Additional submersed vegetation included coontail, southern naiad, and filamentous algae. The only area of the lake without submersed vegetation was the deep water channels. Unlike recent years no hydrilla was observed. Triploid grass carp stocked in 2009 have apparently alleviated hydrilla, at the current time.

Emergent vegetation was found throughout the lake. The dominant emergent vegetation observed was American lotus. Numerous additional species observed included water hyacinth, white water lily, pennywort, alligatorweed, common and giant salvinia, and duckweed to name a few.

Aquatic Vegetation Survey 2013

Area 1 – 75 % American lotus, 30% water hyacinth, scattered common and giant salvinia, fringe of alligator weed and pennywort
Area 2 – 40% American lotus, 40% water hyacinth, mixed with white water lily, scattered common and giant salvinia, fringe of alligator weed and pennywort
Area 3 – 30% American lotus, 20% water hyacinth, mixed with white water lily, fringe of alligatorweed and pennywort
Area 4 – 80% American lotus, scattered common and giant salvinia